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ABSTRACT

This secondary teaching unit is intended to help students in science and social studies understand some of the forces behind rapid population growth in developing nations and the challenges these countries face. The document includes a student handout that is designed to compare and contrast the demographic transition experienced by developing countries with the changes occurring in Kenya today. It then illustrates the political, economic and environmental impacts of Kenya's rapid population growth. The handout also includes a glossary of terms. The accompanying teaching guide provides five classroom activities that attempt to reinforce the key concepts introduced by the reading. It also discusses how some of our lifestyle decisions can contribute to trends that shape the future. Specific discussion questions precede the teacher's unit and a list of other teaching resources is provided. (TW)

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KENYA: A Country In Transition

A Teaching Unit from ZPG

TEACHER'S GUIDE

Currently, developing countries are growing three times faster than developed countries. This rapid population growth will cause political, economic and environmental changes that will affect all of us. It is important that our students are prepared to understand and participate in this quickly changing world.

This secondary teaching unit, appropriate for social studies and science classes, helps students explore the forces behind rapid population growth in developing nations and the challenges this growth creates. The following activities reinforce important concepts introduced in the accompanying student handout and demonstrate how our lifestyle decisions contribute to trends that shape the future.

DISCUSSION QUESTIONS:

After the students have read about Kenya, the following discussion questions are recommended:

1. About 53% of Kenya's population is under 15 years old. In the United States, 22% of the population is under 15. What are some of the things that Kenya needs more of to accommodate their large youth population?
2. Kenya's population level was once relatively stable from year to year. What changes occurred that led to the country's current rapid population growth?
3. How has rapid population growth affected Kenya's environment?
4. How has rapid population growth affected the people in Kenya?
5. If you were born in Kenya, how would your life be different than it is in America?
6. What can a U.S. citizen do about population problems in other parts of the world?

ACTIVITY #1:

FAMILY TREE

PURPOSE: To help students understand how average family size affects a population's growth rate.

PROCEDURE: Calculate the average number of children in your students' families by adding the number of children in all the students' families and dividing by the number of students in the class. Explain that the following activity will show how even slight increases in a population's average family size can make a big difference over time.

Ask four volunteers to represent Couples A and B. Explain that Couple A has a family tradition of having only two children, whereas Couple B has a family tradition of having three children. Have Couple A select two children and Couple B select three children. Ask the "children" to stand in front of their "parents."

Now make the next generation of each family tree: each of Couple A's children chooses two children, and each of Couple B's children chooses three children. Continue this process for one more generation. Couple A should now have 14 descendants and Couple B, 39! (This activity requires 57 students.)

Options for smaller classes:

- Conduct the activity as described, but use chairs for the remaining "children"
- Have students diagram the family trees of Couples A and B on the board
- Illustrate the family trees of couples with one- and two-child family traditions (requires 21 students)

In Kenya, the women have an average of eight children. Have the students diagram the family tree of a couple with an eight-child family tradition for three generations. How many descendants do they have? (584)

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ACTIVITY #2

SOMETHING FOR EVERYONE

PURPOSE: To demonstrate the need for short-term conservation practices in the interest of preserving a long-term supply of a renewable resource.

MATERIALS:
- o Ten plastic chips per student
- o Candies or some other reward
- o Watch with a second hand
- o Record player or tape recorder

PROCEDURE: Divide the class into groups of 10 to 14 and have each group form a circle. Put one-fourth of the chips in the center of each circle. Read the following rules to the students. Allow time for questions to be sure they understand the rules thoroughly.

RULES:
1. The chips belong to all of you.
2. When the music begins, everybody may take away from the pool of chips.
3. You may trade in 10 chips for a reward.
4. As soon as the music stops, I will double the number of chips left in the pool *up to, but not exceeding* the number of chips we started with. Then we will continue the game.
5. You may not talk to anyone during the game.

Play the music for 30 seconds. In all likelihood, the pool will be depleted before the music stops. Play the game again without letting the students talk yet. Afterwards, ask the students how they felt about the game. Did everyone have enough chips to trade in for a reward? Why or why not?

Then have the students devise cooperative strategies that would ensure better distribution of chips among the players while still leaving the pool largely undisturbed. Play the game again using the strategies developed by the students.

FOLLOW-UP DISCUSSION:
1. How did talking about the game make you play differently?
2. Have you experienced a similar situation at home, with friends, in your community?
3. Discuss similarities with other renewable resources and their use or overuse (e.g., deforestation and overuse of land in Kenya, depletion of clean air and water, wide food consumption).

ACTIVITY #3

AGRICULTURE: IS THERE ANY CULTURE LEFT?

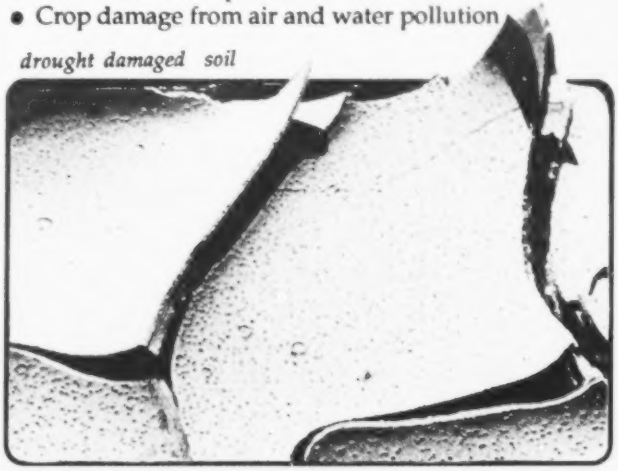
PURPOSE: One of the basic needs of a growing population is increased food production. Successful farming depends on the wise use and management of both social and environmental systems. An environmental system includes land, soil, water and energy. With proper maintenance these resources replenish themselves and can be used to produce healthy crops indefinitely.

Social systems, which include people, policies and practices such as land ownership, resource distribution, and farming techniques, also play a large role in agriculture. This exercise helps students explore the social and environmental problems surrounding agricultural needs and propose solutions.

PROCEDURE: Listed below are five problems that can destroy the natural resources necessary to grow healthy crops. First, have the class decide if each problem is caused more by social systems or environmental systems. Then determine how social or environmental systems can be changed or used to solve each problem.

- Deforestation
- Desertification
- Uncertain or dwindling water supplies
- Conversion of croplands to urban areas
- Crop damage from air and water pollution

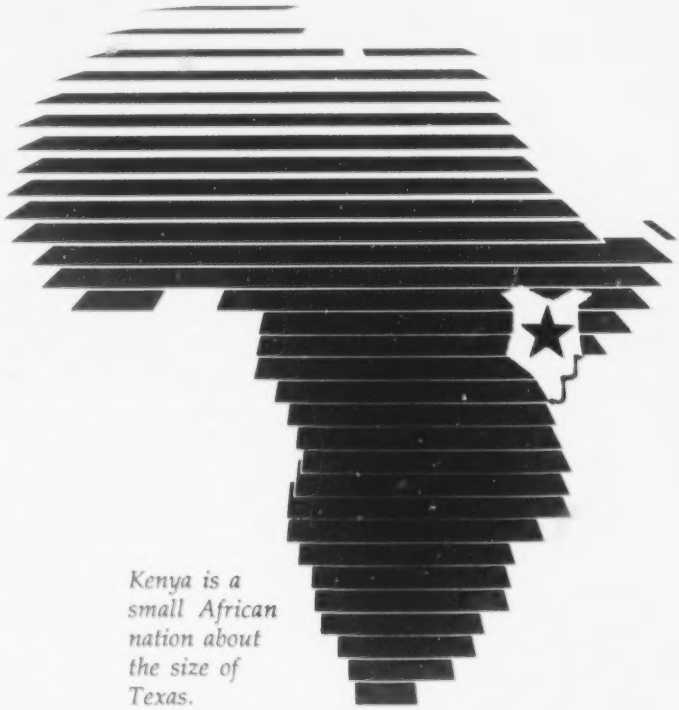
drought damaged soil



KENYA:
A Country In Transition

One of the most striking differences between developing and *developed countries** is their rate of population growth. In most developed countries, the populations are either growing very slowly or not growing at all. *Developing countries*, by contrast, are experiencing huge increases in their populations. Why are developed and developing nations so different in this respect?

By studying Kenya, the world's fastest growing country, we can begin to understand the forces behind rapid population growth in *Third World nations*. Kenya's population of 21 million people is expected to double in just 17 years. In this short time, Kenya will have twice as many people to feed, clothe, house and educate. Because of this rapid population growth, Kenya is facing greater challenges than the world's developed nations have ever experienced.



Kenya is a small African nation about the size of Texas.

Population growth and modernization

Throughout history, countries that have become modernized have experienced a significant increase in population followed by a leveling off of growth. This is referred to as *demographic transition*. Simply put, demographic transition is the change from a high *birth rate* and a high *death rate* to a low birth rate and a low death rate as a country becomes developed or industrialized.

Demographic transition occurred in Western Europe, America and Japan during different periods in history. Although these three areas varied widely in terms of government systems, cultural values, resources and economic development, some common elements did exist. Each area experienced transition from an *agrarian* to an industrial economy, causing the population to migrate from rural to urban areas, and the *nuclear family* structure to replace the *extended family* structure. Let's briefly explore how these three changes affected population growth.

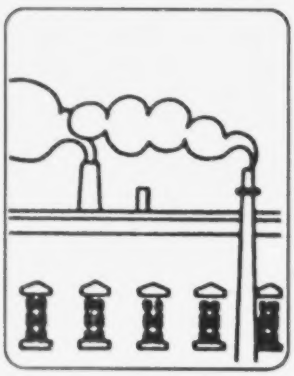
Before *industrialization*, most people survived by farming and birth rates were very high. Having many children guaranteed having many hands to work in the fields. Children also provided support for their parents during old age; therefore, the extended family was common.

Death rates were high, especially for infants and children, because of the lack of sanitation, adequate medicine and health care. Parents, expecting some of their children to die at an early age, would have 8 to 10 children, hoping 5 or 6 would survive. This is referred to as the "insurance effect."

see glossary for key words

Although there were many *incentives* for having large families and few means to limit them, the death rate was so high, and the average lifespan so short, that population growth was very slow.

Demographic transition first occurred in Western Europe, where the *Industrial Revolution* began. As advances were made in health, medicine and sanitation, death rates gradually decreased and life expectancy increased. Soon, the populations in these countries began to swell because the birth rates remained high as death rates fell.



People were lured from the harsh life in the country to the cities that promised jobs, housing, education, health care and better overall living conditions. However, unlike self-sufficient life on the farm, where the land provided food and income to the family and children provided free labor and security in old age, life in the city was expensive.

Children were sent to school and supported by their parents, instead of working in the fields and contributing to the family income. Food had to be bought instead of harvested. Nuclear families gradually developed as the increased cost of raising children made it impractical for young couples to care for their parents as well as their children.

In the cities, people found many new goods and services they could purchase. Parents were faced with new choices, and having fewer children meant more income was available to spend on each family member. Parents of smaller families were able to send their children to good schools, dress them in nice clothes and provide good homes. These small families became role models of success to others. All of these lifestyle changes resulted in lower birth rates, and population growth began to level off once again.

Demographic transition in Kenya

Will the developing nations of Latin America, Africa and Asia follow the same demographic pattern that Western Europe, America and Japan did? Why are developing countries like Kenya growing so fast? Let's take a closer look at life in Kenya and the reasons for its rapid growth.

A heritage of large families

Before Africa was colonized, it was governed by *tribalism*. In this agrarian culture, land was considered wealth and power. Tribes expanded their territories through warfare, and the larger the tribe, the more territory and power it possessed. Tribal leaders encouraged their people to have many children to make the tribe bigger and stronger.

World Bank Photo by James Pickerell

Masai tribesman

When Kenya gained independence from England in 1963, tribes that once competed with each other for land became citizens of one country and had to establish one government. Large tribes still enjoyed many advantages over smaller tribes. Leaders of the largest and strongest tribe, the Kikuyu, quickly gained power. Kenya's first president, Jomo Kenyatta, was from this tribe.

President Kenyatta provided incentives for tribes to expand by granting political favors and development projects to the most populous tribes. Even today large tribes exercise great influence in the government. President Daniel arap Moi, who is from a tiny tribe, has to have the backing of the Kikuyu if he is to rule effectively.

Traditionally the male role in Africa was waging war and hunting. Since Kenya's independence, warfare has been outlawed and animals once hunted are protected by the government. Although men's roles are changing, they are still not expected to bear the burden of raising children, yet they reap many benefits from having a large family.

Because of the cultural and political incentives for enlarging the tribe, Kenyan men earn prestige and respect from tribal leaders by fathering many children. As a man's children grow up and marry, he gains access to more family networks and land, thereby increasing his regional power. When he grows old, his many children will care for him as he cared for his elders.

UNICEF Photo by Werner Gartung

Women do most of the farming in Kenya.

Almost 85 percent of Kenya's people live in rural villages and survive by farming. This is a striking contrast to a developed country like the United States, where 74 percent of the population is urban and only 3 percent of the population makes a living in agriculture.

Women in Kenya are responsible for farming, cooking, cleaning and caring for the family. Most women want many children to help with their heavy work load, to please their husbands, to earn the respect of their community, and to ensure there will be someone to care for them when they are old. In Kenya's tribal society, children represent prestige, power, free labor and social security. It is easy to see why Kenyans consider children gifts from God and why the women bear an average of eight children.

World Bank Photo by Kay Chernush

The effects of modernization

Modernization is not a stranger to Kenya; in fact, Kenya is probably one of the most modern countries in Africa. Its capital, Nairobi, is the bustling financial, commercial, industrial and tourist center of East Africa. Kenya also has a higher adult *literacy rate*, primary school enrollment and *per capita* income than most African nations.

Important changes are reaching rural areas of the country as a result of increasing modernization. People have new opportunities, aspirations and perceptions. Success, which once meant providing enough food for the family to survive, now includes being educated, purchasing consumer goods, owning land, building a tin-roofed house, and investing in fencing, irrigation and other improvements.

Modern health practices, such as child *immunization programs*, have made great strides in reducing *infant*

Photo by Annette Hatch

Kenya's capital, Nairobi.

mortality. In 1958, 159 of every 1000 children born died before their first birthday, compared to 72 of every 1000 born in 1986. General improvements in health, nutrition and medicine have helped decrease death rates and lengthen the average lifespan. Better health and longer lives have enabled women to bear more children.

Unlike Kenya, Western Europe and America became modernized gradually. In these areas, death rates dropped slowly because the technology that provided a better standard of living was still being developed. Over several decades, birth rates gradually fell as people experienced, first-hand, the advantages of having smaller families and the disadvantages of having more children than they could support.

In Kenya, however, the death rate is not declining gradually as it did in developed nations. Because the technology intended to improve living conditions was imported, fully developed, from industrialized countries, the death rate has plunged dramatically. Kenyans have had little time to change the cultural practices and values that promote large families. As a result, the population is growing at a tremendous rate.

The rapid decline in the death rate is a key factor in Kenya's growth rate of 4.2 percent a year, almost double the growth rate that any developed country ever experienced. Currently more than half of the people in Kenya are under 15 years old. In just a few years these young people will begin to have their own children. Unfortunately, the infant and child mortality rates still are not low enough to stop the insurance effect, and families continue to have more children than they can support. What will Kenya's future hold if its population continues to grow at this rate?

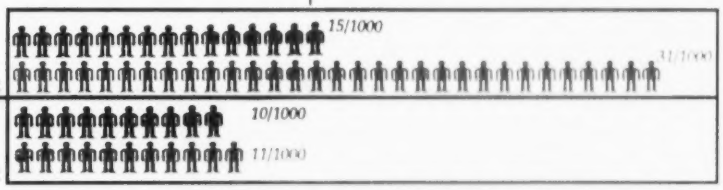
African school children.

FAO Photo by F. Botts

Ecological and social transition in Kenya

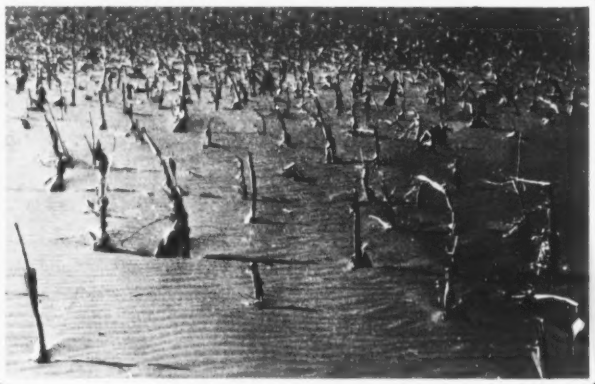
Pressures are already being felt in Kenya from this growing population. Only 20 percent of the land is arable, and one third of the country is rapidly spreading desert. Kenya's food production is not keeping pace with the increases in its population; it is barely producing enough food to feed 85 percent of its people.

Forests, which provide fuel for cooking and heat, are being chopped down at the tremendous rate of 50 acres per minute. Clearing forests eventually



Source: Population Reference Bureau, 1986 World Population Data Sheet

destroys the soil, which is no longer being replenished with nutrients from decomposing plants, leaves, animals and their waste. New plants cannot grow in soil that lacks these important nutrients. The chance of flooding also increases, because the extensive root system of trees is no longer present to absorb heavy rainfall. Also, without live roots from plants and trees to hold the earth together, valuable topsoil is blown or washed away, choking streams, reservoirs and irrigation facilities. Soon all that is left is the skeleton of the soil, or sand. The end result is desert.

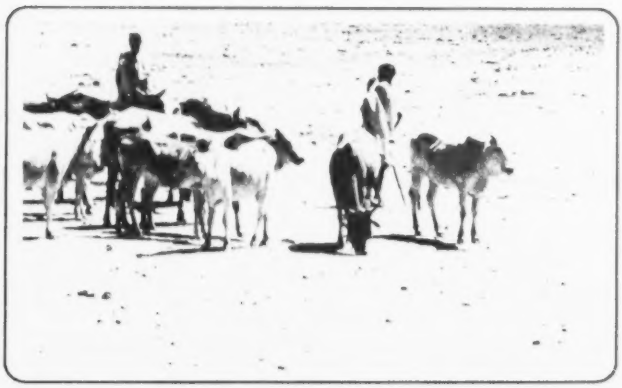


USDA Photo

The effects of soil erosion.

Kenyan men, who have traditionally divided their land holdings among their sons, have little land to give, and the plots of land grow ever smaller as they are handed down from generation to generation. The women farming these plots find it harder and harder to feed their large families. Because they cannot afford to let any of the land lie fallow for several years, the soil's nutrients are depleted and it cannot support healthy crops.

Livestock overgraze the land.



World Bank Photo by Ray Whitlin

Cattle raising also contributes to the loss of fertile soil. Livestock are permitted to overgraze the grasslands, eating away the plants that protect the topsoil from being washed or blown away. Most farmers and herders are probably aware of the destructiveness of their actions, but when they are struggling every day just to survive, it's easy to understand why they ignore long-term environmental consequences.

Rural families dream of a better life for their children. They want their children to go to school so they can get jobs in the city. Although the government has made it mandatory for all children to attend school through the sixth grade, there are not enough schools, teachers, books or supplies. Students have to pay tuition to go to school beyond the sixth grade, but it is too expensive for many families to afford. Even when they can pay the tuition, thousands of students who pass high school and college entrance exams are turned away because there is no room.

Many families sell their farms and move to the city in search of a better life, but the recent mass migration to the cities has created an urban nightmare. The cities are plagued by slums, crime, and economies that simply cannot expand fast enough to provide jobs and social services for their rapidly growing populations. The unemployment rate for men in Kenya is about 45 percent and there is no unemployment compensation. The children who do get into school are being educated for jobs that may never be available.

Kenya, once Africa's showcase of economic success, is now experiencing a recession. Soon after independence, factories were built to manufacture products previously imported from other countries. Kenyan manufacturers hoped to export these products to neighboring African countries. Their initial economic success attracted foreign investors from Europe, the U.S. and Japan who provided loans to build more factories.

Political unrest and economic instability among its neighboring countries ended Kenya's hopes of regional export. Most of the factories are now underused, and output among manufacturers has stagnated. In addition, agricultural output between 1972 and 1980 rose only 2.5 percent a year, while the population increased by 4 percent annually.

To keep poor urban-dwellers from starving, the government lowered food prices below market values. Farmers, who could no longer make a profit growing food for this market, returned to planting only subsistence crops. Soon Kenya was forced to buy grain from South Africa, its political enemy.

To make economic matters worse, the loans made by foreign investors in the 1970's are now coming due, causing a budget crunch that has forced the government to cut back essential health, family planning and education programs in rural areas where they are needed most.

Kenyans are determined not to return to the days of colonization and foreign domination, and deep distrust of foreign intervention has made it difficult for developed countries to offer help. Many Kenyans even believe the U.S. and England are plotting to dominate Africans by limiting their numbers.

Because the Kenyan government strongly supports family planning, many Kenyans suspect the government of conspiring with outside powers. In early 1986, school children all over the country refused to drink government-supplied milk because a rumor was spread that the milk had been laced with contraceptives.

There also has been a long history of inappropriate foreign aid to Kenya. Sending modern farming machines, such as tractors or plows, has not been helpful to a country that does not have access to spare parts and gasoline. Assistance strategies also have not recognized the key role of women in African farming.

At the same time, family planning efforts have been directed primarily at women, although in an African family, it is the man's privilege to decide how large his family will be.

Signs of progress

Education is an essential component of Kenya's development. Recognizing this, the government devotes 30 percent of the national budget to education. Students read books published in London or New York and are exposed to Western traditions such as small families, women's rights and the nuclear family structure. Those who do get an education and find jobs tend to have smaller families. Their children are well fed, well educated and well dressed. These people represent Kenya's emerging middle class.

This tiny middle class can potentially change the traditional values of many Kenyans by the example of success they set. Indeed, wealthy and middle-class Kenyans have goals and values that are distinctly Western. They are educated, economically ambitious and dedicated to making their children's lives better than their own. If this middle class grows and becomes a majority, it could form the foundation for economic and political stability.

Kenyan garment worker.

World Bank Photo by Kay Chernush

Kenya's political leaders are developing policies directed at improving living conditions and bringing population growth under control. President Daniel arap Moi is very outspoken about family planning and urges all Kenyans to have fewer children and space their children's births further apart. In 1986, the government announced plans to spend $50 million over the next four years to curb population growth.

Kenyan maternal and child health poster.

World Bank Photo by Kay Chernush

In July 1985, the Kenyan national leaders' conference passed a resolution to increase maternal and child health services and train more family planning workers. These services will be planned and implemented at the district level, rather than the national level. Efforts will also be made to identify and reinforce cultural practices, such as prolonged breast-feeding, that traditionally encouraged and sustained birth-spacing practices in African societies.

These programs can help lower the high birth rate in several ways. Lower infant mortality may eventually end the insurance effect that encourages families to have more children than they can support. Family planning methods may be better accepted if people learn about them through their own tribal members, and if these methods reinforce familiar cultural practices.

A mother weighs her baby at a health clinic.

Kenya's government also plans to create several small market towns that may one day provide the engine for renewed economic growth. These new urban centers could help stem the migration to the cities of Nairobi and Mombasa and stimulate small-scale industry. Also, the development of cash crops, such as coffee and tobacco, could increase Kenya's ability to compete successfully in world markets and decrease its dependence on regional markets.

Farmers are now offered incentives to increase their food production, and there are a few agricultural research centers that will soon foster agricultural technologies appropriate for Kenya's farming conditions and resources. The Green Belt Movement, led by women, is also improving agricultural prospects by planting trees to help stop soil erosion. Two million trees have already been planted during the first decade of this movement.

What will tomorrow bring?

Midway through demographic transition, Kenya faces a tremendous challenge: achieving a desirable quality of life while unprecedented demands are being made on its environmental, economic and social resources. This challenge is now being faced by many Third World nations. Understanding the causes and impacts of rapid population growth is essential if people are to effectively address the critical issues that affect these countries and, ultimately, the world.

Glossary

agrarian - characteristic of the farmer or his/her way of life

arable - fit for being cultivated and growing crops

birth rate - the number of babies born in a given year per 1000 individuals in the population

death rate - the number of people who die in a given year per 1000 individuals in the population

demographic transition - the change from a high birth rate and high death rate to a low birth rate and low death rate as a country becomes developed or industrialized

developed countries - countries having a high standard of living with many industries and extensive use of natural resources

developing countries - those countries with little industry and low use of most natural resources

extended family - a family in which other relatives in addition to the immediate family live together in one household

fallow - left unplanted after plowing

growth rate - the percent by which a population increases in a given year

immunization program - a program offering people vaccinations to protect against potentially fatal diseases

incentives - motivations, gains or rewards for one's actions

Industrial Revolution - a period in European and American history, beginning about 1750, when machines were invented which could do the work of many people

industrialization - a society's use of industry as a main source of income, employment, goods and services

infant mortality rate - the number of infant deaths (infants under one year old) in a given year per 1000 live births that year

irrigation - a means of supplying dry land with water, using pipes, ditches, pumps, etc.

literacy rate - the number of people per 1000 who can read and write

migration - the movement of people from one area to another for the purpose of establishing a new permanent residence

nuclear family - a family group that consists of only the father, mother and children living together

per capita - per person, for each individual

reservoir - an artificial lake where water is kept in quantity

subsistence farming - farming that provides all or almost all of the goods required by the farming family, usually without any surplus

Third World nations - same as developing countries

tribalism - tribal loyalty, respect for the tribe above all other groups.

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ACTIVITY #4

FOOD FOR THOUGHT

PURPOSE: To help students generalize what they have learned about Kenya by comparing the distribution of resources in a developing region and a developed region and how people in these regions are affected by these differences. This exercise will compare the continent of Africa with North America as defined by the United Nations (U.S. and Canada only).

MATERIALS:

- Ambassador cards (below)
- 14 oz. bag of Hershey's Kisses and two plastic sandwich bags
- Large name tags that read "African Ambassador" and "North American Ambassador"
- 3 unshelled peanuts per student and two paper plates

PREPARATION:

1. Place 70 Hershey's Kisses in a plastic bag to represent North America's 1983 per capita GNP and 4 Kisses in another bag for Africa. (Each Kiss represents approximately $200.)
2. Make a copy of the Ambassador cards for the two Ambassadors.
3. Designate an area in the classroom to represent Africa that is large enough for 2/3 of the students. Designate another area of the classroom to be North America that is large enough for the remaining third of the class.
4. Count out 3 peanuts for each student in Africa and put them on a paper plate. Do the same for North America.

PROCEDURE: Ask for volunteers to be the North American and African Ambassadors. Give each Ambassador a name tag and information card for his region. Have another volunteer record the Ambassadors' information about their regions on the blackboard. The Ambassadors should take turns reading each item on their list, so the class can see and discuss the differences between the regions.

Now have 1/3 of the class join the North American Ambassador in the predesignated area of the room representing his region and the other 2/3 of the class join the African Ambassador in his "region." If your class does not divide evenly into thirds, remaining students should join Africa.

Once the regions have been populated, explain that an ideal diet consists of 100 grams of protein per day, which is represented by 3 peanuts. Show each region how many peanuts they would receive in an ideal world. But in Africa, the real protein consumption is less than ideal, so before giving the African Ambassador his region's allotment of protein, remove 1/3 of the peanuts from the plate. Now ask the Ambassadors to distribute their regions' protein as they see fit, or according to the political realities of their regions.

Finally, give each Ambassador his bag of Hershey's Kisses that represents the 1983 per capita GNP in his region. Explain that each candy represents $200. To further demonstrate what can happen when distributing a scarce resource, have the ambassadors distribute their "wealth" to their citizens. Ask the citizens to react to the conditions in their region. Are they content with their situation? Did the ambassadors distribute the wealth and food fairly? Will there be a revolution? Will some people emigrate to another region that has more food or wealth?

FOLLOW-UP DISCUSSION:

1. Do donor nations have the right to link food aid to certain policies?
2. Should food aid be given to countries that have not effectively dealt with their population problems?
3. Should rich countries decrease their consumption levels?

North American Ambassador:

A. Our population is estimated at 267 million.
B. Our birth rate is 16 per 1000.
C. Our death rate is 9 per 1000.
D. Our population is growing at an annual rate of 0.7 percent.
E. At this rate our population will double in 98 years.
F. Our infant mortality rate is 10 per 1000.
G. Our life expectancy at birth is 75 years.
H. For every person there is approximately 2.19 acres of arable land.

African Ambassador:

A. Our population is estimated at 583 million.
B. Our birth rate is 45 per 1000.
C. Our death rate is 16 per 1000.
D. Our population is growing at an annual rate of 2.8 percent.
E. At this rate our population will double in 24 years.
F. Our infant mortality rate is 118 per 1000.
G. Our life expectancy at birth is 50 years.
H. For every person there is approximately .77 acres of arable land.

ACTIVITY #5:

MAKING A DIFFERENCE

PURPOSE: Teachers and students often wonder what they can do to help solve the problems caused by continuing population growth. Through this activity, students identify individual actions that can help reduce the impacts of population growth on the quality of life.

PROCEDURE: Population growth affects not only developing nations but developed nations as well. Have your students list problems in the U.S. that might be caused by population growth (e.g. traffic jams, water and housing shortages, air and water pollution, unemployment, land use debates, etc.).

Conserving resources, making others aware of the problem, being an educated consumer, and working to clean up the environment are all things we can do to help solve these problems. Ask the class to think of ways they can do each of these things. Below are some suggestions to help get the class started.

Conserve resources: Buy only products you need and fully use what you buy. Recycle your family's newspapers, cans and glass. Bus, carpool, walk or ride a bike when you can. Turn off electrical appliances and lights when they are not being used. Use less heat in winter and less air conditioning in summer. Eat foods that are lower on the food chain. Reduce your use of paper products.

Help make others aware of the problem: Write a letter to a legislator or newspaper editor expressing your concerns. Join a national organization that works to preserve the environment or limit population growth. When discussing future plans with your friends, help them become aware of the advantages of having smaller families. Write to food companies to express your concern about the amount of packaging they use.

Be an educated consumer; do not support companies that waste resources, pollute the environment, or exploit poor nations: Boycott gourmet foods imported from countries that do not grow enough food to feed their people. Avoid buying junk food that is produced with resources and energy that could be used to provide nutritious foods.

Help clean up the environment: Pick up litter and dispose of it properly. Start a recycling center. Ask for paper bags instead of plastic bags at the grocery store.

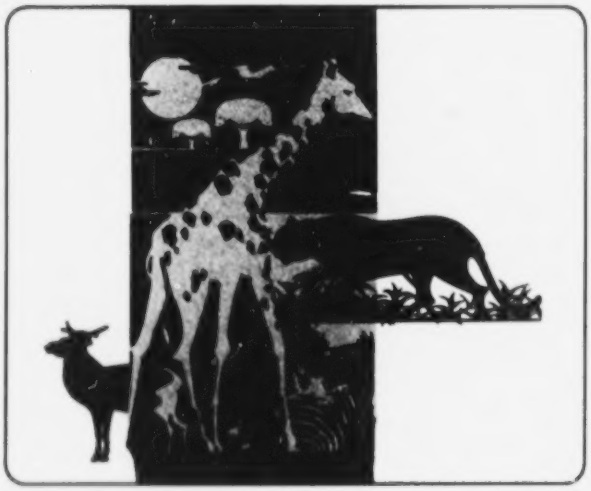
RESOURCES:

Something for Everyone is an adaptation of an activity developed by Karen Zimbelman and Kurt and Ursula Frischknecht at the University of Michigan's School of Natural Resources. The original activity appears in *Thinking Globally and Acting Locally: Environmental Education Teaching Activities* by Lori D.Mann and William B. Stapp, ERIC/SMEAC, 1982.

Family Tree and **Food for Thought** were adapted from ZPG's *EdVentures in Population Education* teaching kit for grades 4-12.

Agriculture, Is There and Culture Left? was adapted from ZPG's *Global 2000 Countdown Kit* for grades 9-12. For a complete list of ZPG's teaching materials, write: Zero Population Growth, Box K, 1601 Connecticut Avenue NW, Washington, DC 20009.

The Population Reference Bureau also has a wealth of resources: teaching materials, population data charts, and a film library. For publication and film lists write: PRB, 777 14th St. NW, Washington, DC 20005.



Kenya: A Country in Transition and the accompanying teaching guide were written by Nancy Jakubowski. A classroom set of 30 student handouts and one teaching guide is available from ZPG for $5; the teaching unit (one student handout with teaching guide) is $1. Permission to reproduce these materials for classroom use is granted by ZPG. References used for the student handout are available upon request.